

WHAT IS CLAIMED IS:

1. An image-forming apparatus comprising:

a charging object member;

5 a charging assembly which is in contact with the
charging object member to electrostatically charge the
charging object member;

an exposure assembly which forms an electrostatic
latent image on the charging object member by exposure;

10 a non-contact developing assembly making use of a
magnetic one-component developer, which develops the
electrostatic latent image with the magnetic
one-component developer to form a magnetic-toner image
and collects a magnetic toner remaining on the charging
object member; and

15 a transfer charging assembly which transfers to a
recording medium the magnetic-toner image formed on the
charging object member;

wherein said charging assembly comprises a
charging member constituted of an elastic body having
20 the shape of a roller and having a porous material at
least on its surface, the surface of said charging
member is movable with a velocity differential in the
opposite direction with respect to the surface of said
charging object member, and conductive particles are
25 present at least at the contact surfaces between said
charging member and said charging object member;

said velocity differential being from -101 % to

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-400 %;

said charging member having a surface roughness Ra of from 1 μm to 500 μm ;

said charging object member having a surface with a contact angle to water of from 86° to 103°;

said magnetic one-component developer comprising a magnetic toner having at least a binder resin and a magnetic material, and said magnetic one-component developer having an average circularity of 0.950 or more as determined from the following equations:

Equation (1)

Circularity (Ci) =

$$\frac{\text{Circumferential length of a circle with the same area as projected particle image}}{\text{Circumferential length of projected particle image}}$$

Equation (2)

$$\text{Average circularity } (\bar{C}) = \frac{\sum_{i=1}^m C_i}{m}$$

2. The image-forming apparatus according to claim 1, wherein said magnetic one-component developer has conductive particles.

3. The image-forming apparatus according to claim 2, wherein said conductive particles have a specific resistance of $1 \times 10^{12} \Omega \cdot \text{cm}$ or below and an average particle diameter of from 10 nm to 10 μm .

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4. The image-forming apparatus according to claim
1, wherein said charging object member is an
electrophotographic photosensitive member, the
outer-most surface layer of which has a volume
5 resistivity of from $1 \times 10^9 \Omega \cdot \text{cm}$ to $1 \times 10^{14} \Omega \cdot \text{cm}$.

5. The image-forming apparatus according to claim
1, which further comprises an intermediate transfer
member, and the magnetic toner image on said charging
10 object member is transferred to the recording medium
via the intermediate transfer member.

6. The image-forming apparatus according to claim
1, wherein said charging member is a charging roller
15 and the charging roller has a hardness of from 25
degrees to 50 degrees as Asker-C hardness.

7. The image-forming apparatus according to claim
1, wherein said conductive particles have a specific
20 resistance of $1 \times 10^{12} \Omega \cdot \text{cm}$ or below.

8. The image-forming apparatus according to claim
1, wherein said conductive particles have an average
particle diameter of from 0.010 μm to 10 μm .
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9. An image-forming method comprising:
charging a charging object member

electrostatically by means of a charging assembly which is in contact with the charging object member;

exposing the charging object member thus charged, by means of an exposure assembly to form an
5 electrostatic latent image on the charging object member;

developing the electrostatic latent image by means of a non-contact developing assembly having a magnetic one-component developer, to form a magnetic-toner image
10 on the charging object member;

transferring the magnetic-toner image formed on the charging object member, to a recording medium by means of a transfer charging assembly;

charging by means of the charging assembly the
15 charging object member having thereon a magnetic toner remaining after transfer;

exposing the charging object member thus charged, by means of the exposure assembly to form an electrostatic latent image on the charging object
20 member;

developing the electrostatic latent image with the magnetic one-component developer to form a magnetic-toner image on the charging object member, and collecting in the non-contact developing assembly the
25 magnetic toner remaining on the charging object member; and

transferring the magnetic-toner image formed on

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the charging object member, to a recording medium by means of the transfer charging assembly;

wherein said charging assembly comprises a charging member constituted of an elastic body having the shape of a roller and having a porous material at least on its surface, the surface of said charging member is moved with a velocity differential in the opposite direction with respect to the surface of said charging object member, and conductive particles are present at least at the contact surfaces between said charging member and said charging object member;

said velocity differential being from -101 % to -400 %;

said charging member having a surface roughness Ra of from 1 μm to 500 μm ;

said charging object member having a surface with a contact angle to water of from 86° to 103°;

said magnetic one-component developer comprising a magnetic toner having at least a binder resin and a magnetic material, and said magnetic one-component developer having an average circularity of 0.950 or more as determined from the following equations.

Equation (1)

Circularity (Ci) =

$$\frac{\text{Circumferential length of a circle with the same area as projected particle image}}{\text{Circumferential length of projected particle image}}$$

Equation (2)

$$\text{Average circularity (C)} = \frac{\sum_{i=1}^m C_i}{m}$$

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